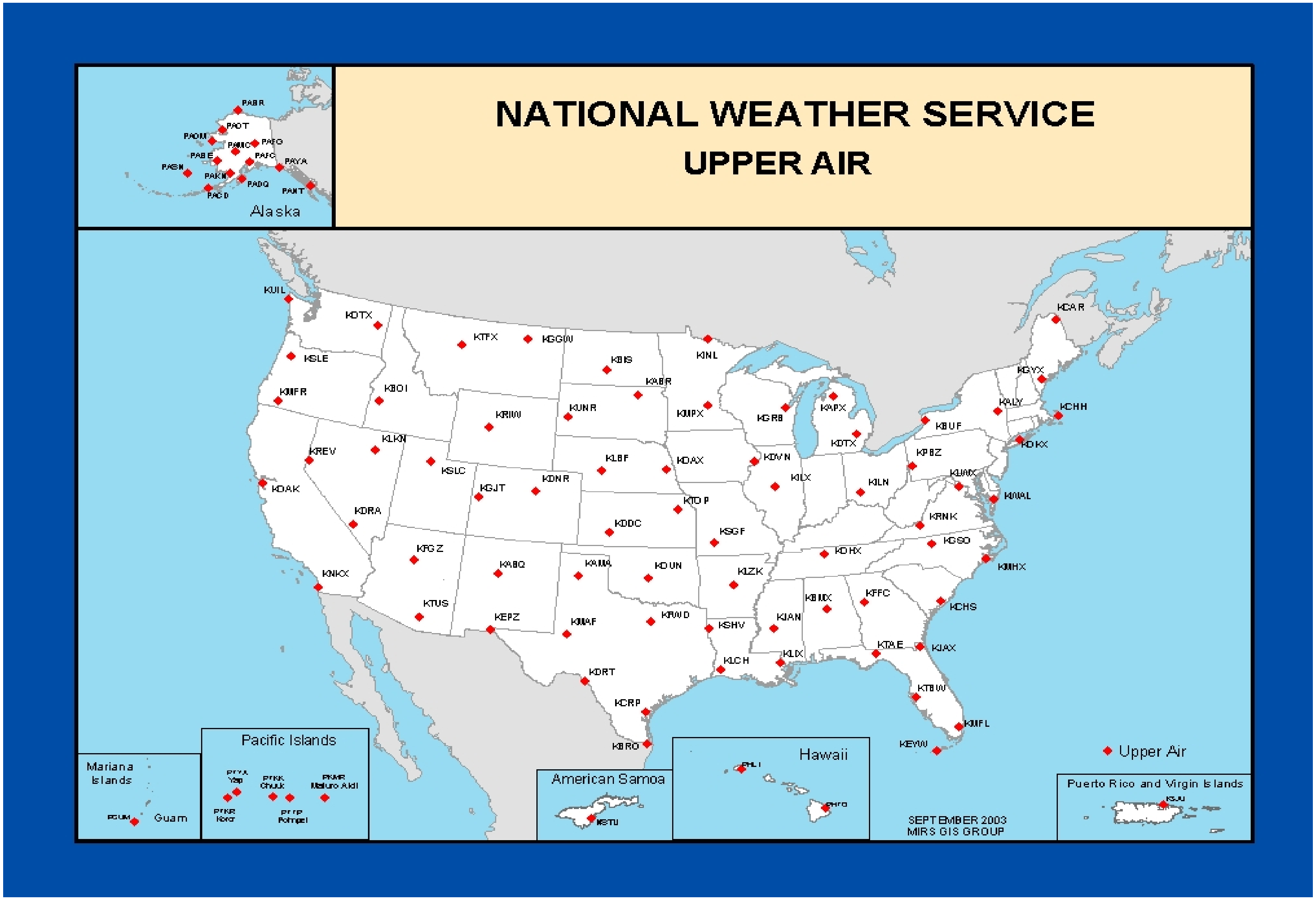
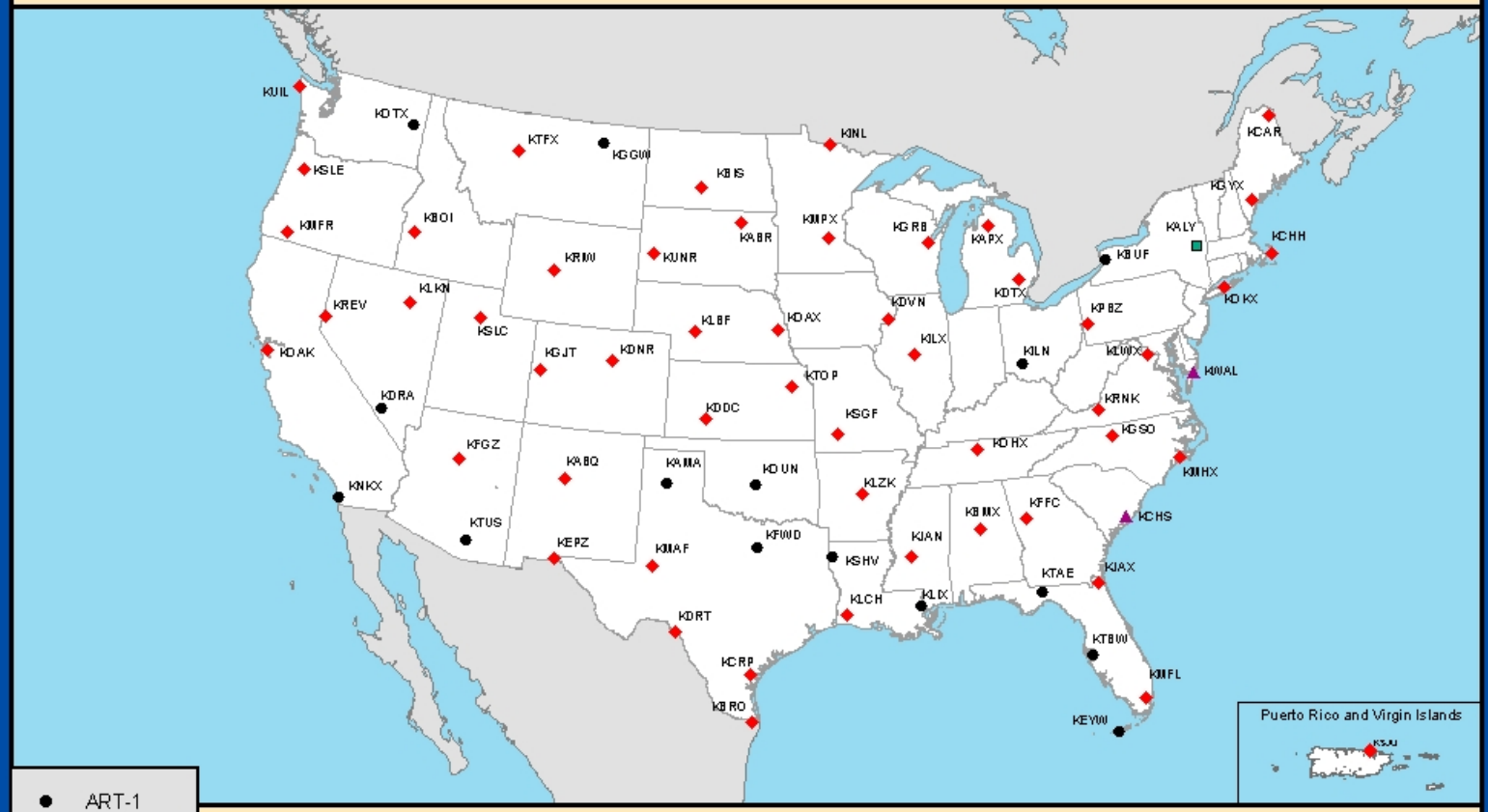
APPENDIX III-A

Network Maps


NATIONAL WEATHER SERVICE
UPPER AIR
Alaska
Pacific Islands
Mariana Islands
Guam
American Samoa
Hawaii
Puerto Rico and Virgin Islands
Upper Air
SEPTEMBER 2003
MIRS GIS GROUP
KUIL
KOTX
KTFX
KGGW
KBIS
KINL
KSLE
KBOI
KABR
KMFR
KRIW
KUNR
KMPX
KGRB
KAPX
KCAR
KGYX
KALY
KCHH
KBUF
KOKX
KLKN
KREV
KLBF
KOAX
KDVN
KDTX
KILX
KPBZ
KSLC
KDNR
KGJT
KOAK
KILN
KIAD
KWAL
KTOP
KDRA
KDDC
KSGF
KRNK
KGSO
KFGZ
KOHX
KMHX
KNKX
KABQ
KAMA
KOUN
KLZK
KBMX
KFFC
KCHS
KTUS
KEPZ
KMAF
KFWD
KSHV
KJAN
KTAE
KJAX
KLIX
KLCH
KDRT
KTBW
KCRP
KMFL
KBRO
KEYW
PGUM
PTKR
PTPN
PKMR
PTKK
PTYA
NSTU
PHLI
PHTO
TJSJ

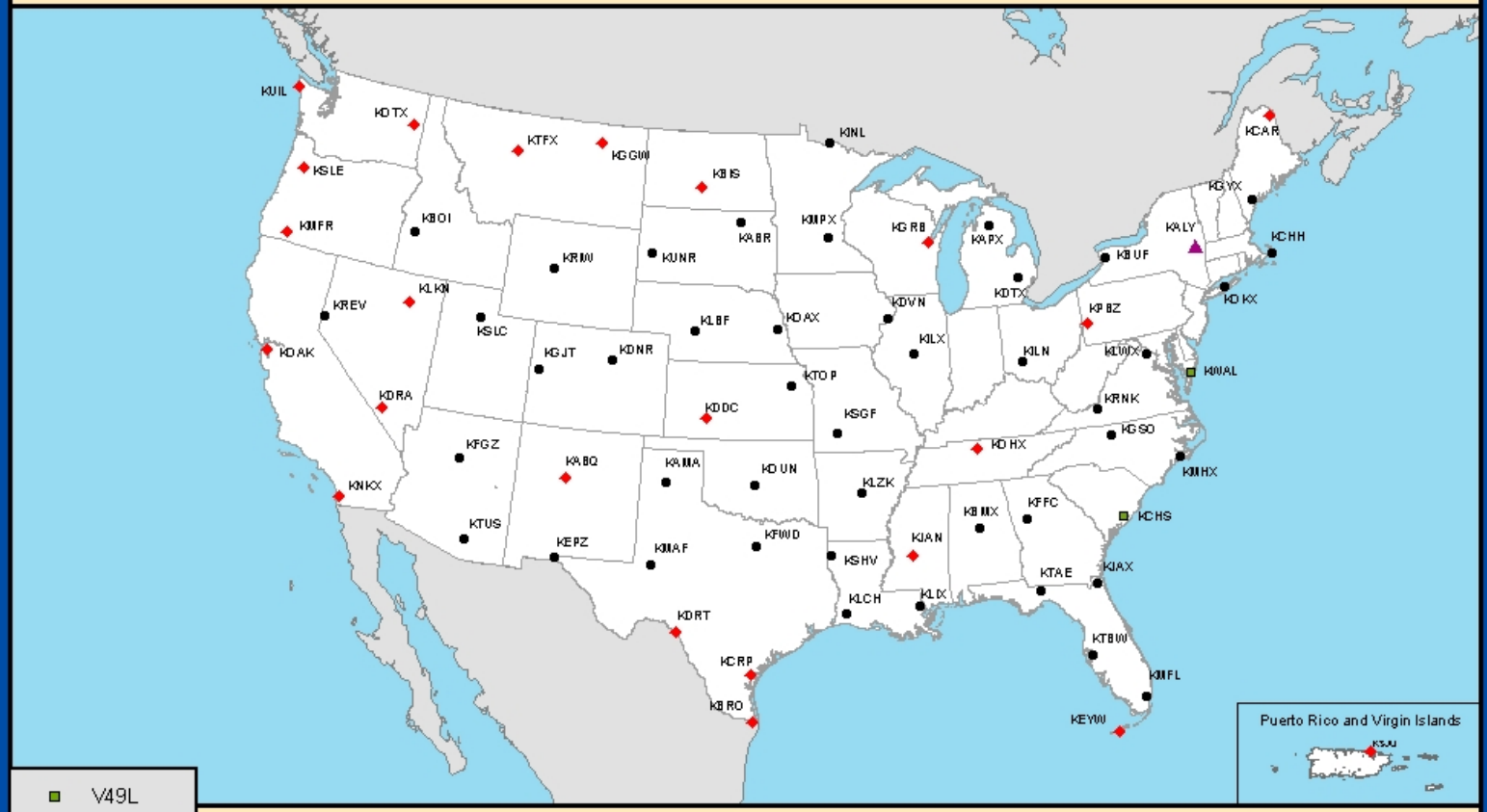
UPPER AIR SITES BY GROUND EQUIPMENT
CONTINENTAL UNITED STATES



NATIONAL WEATHER SERVICE

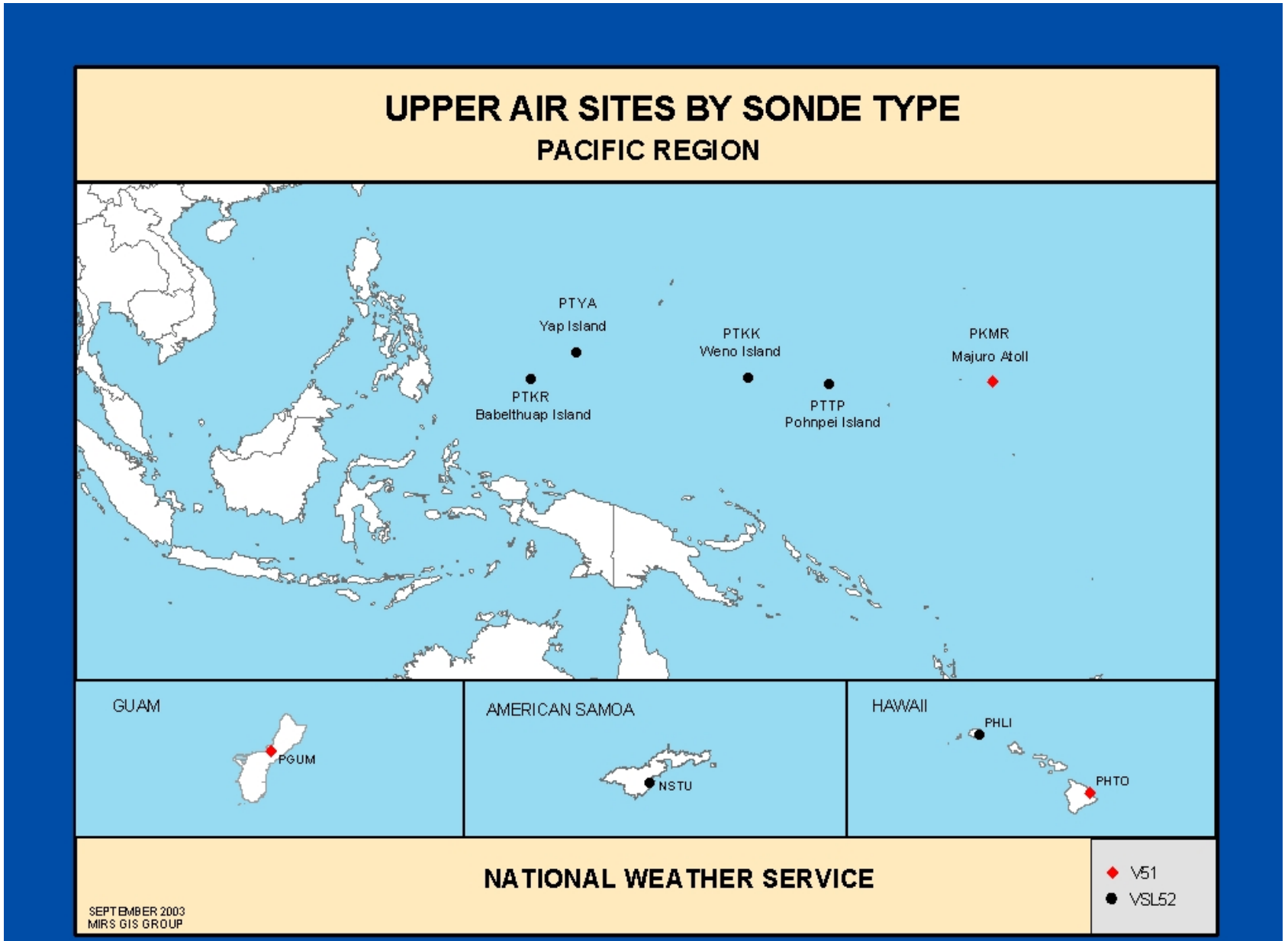
SEPTEMBER 2003
MIRS GIS GROUP

UPPER AIR SITES BY SONDE TYPE
CONTINENTAL UNITED STATES

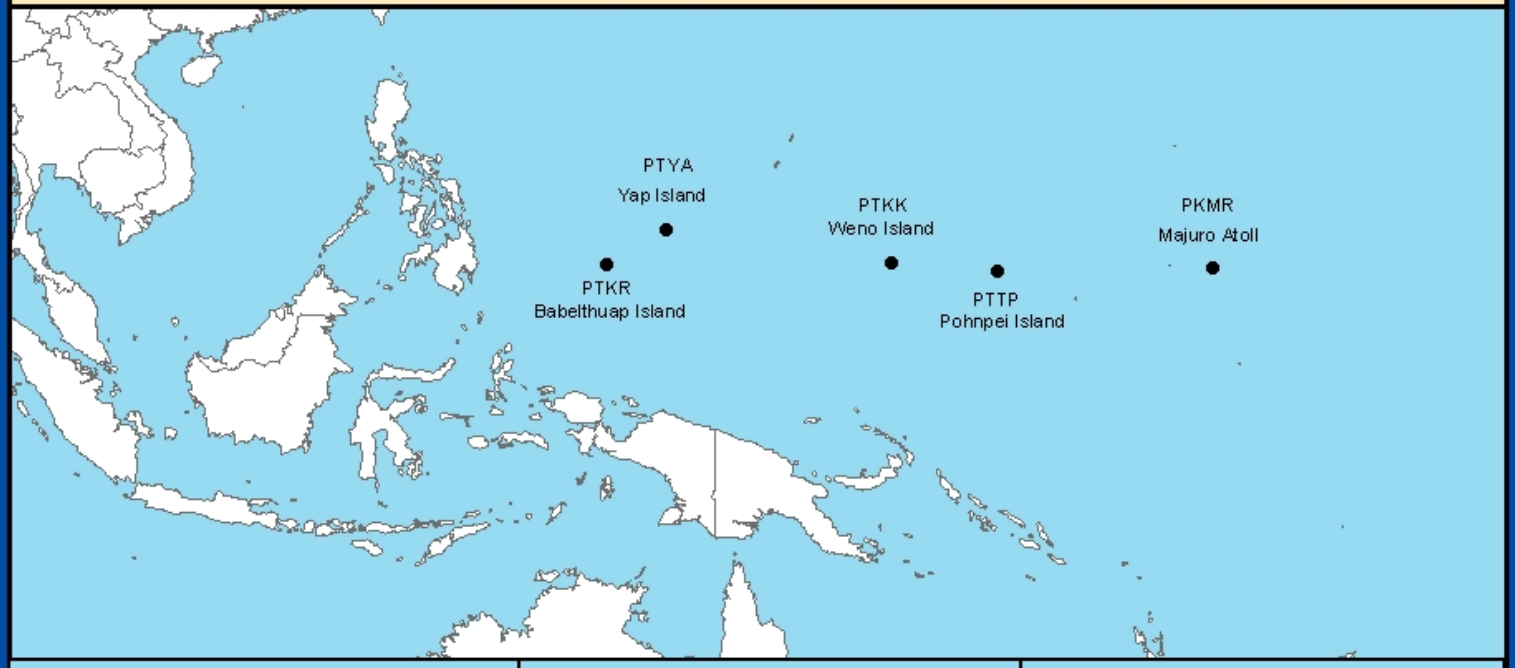


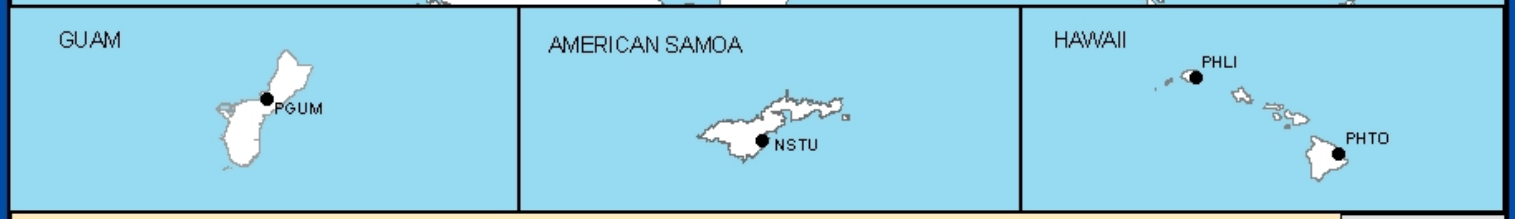
NATIONAL WEATHER SERVICE

SEPTEMBER 2003
MIRS GIS GROUP


UPPER AIR SITES BY SONDE TYPE
PACIFIC REGION
PTYA
Yap Island
PTKK
Weno Island
PKMR
Majuro Atoll
PTKR
Babelthuap Island
PTTP
Pohnpei Island
GUAM
PGUM
AMERICAN SAMOA
NSTU
HAWAII
PHLI
PHTO
NATIONAL WEATHER SERVICE
V51
VSL52
SEPTEMBER 2003
MIRS GIS GROUP

UPPER AIR SITES BY GROUND EQUIPMENT
PACIFIC REGION



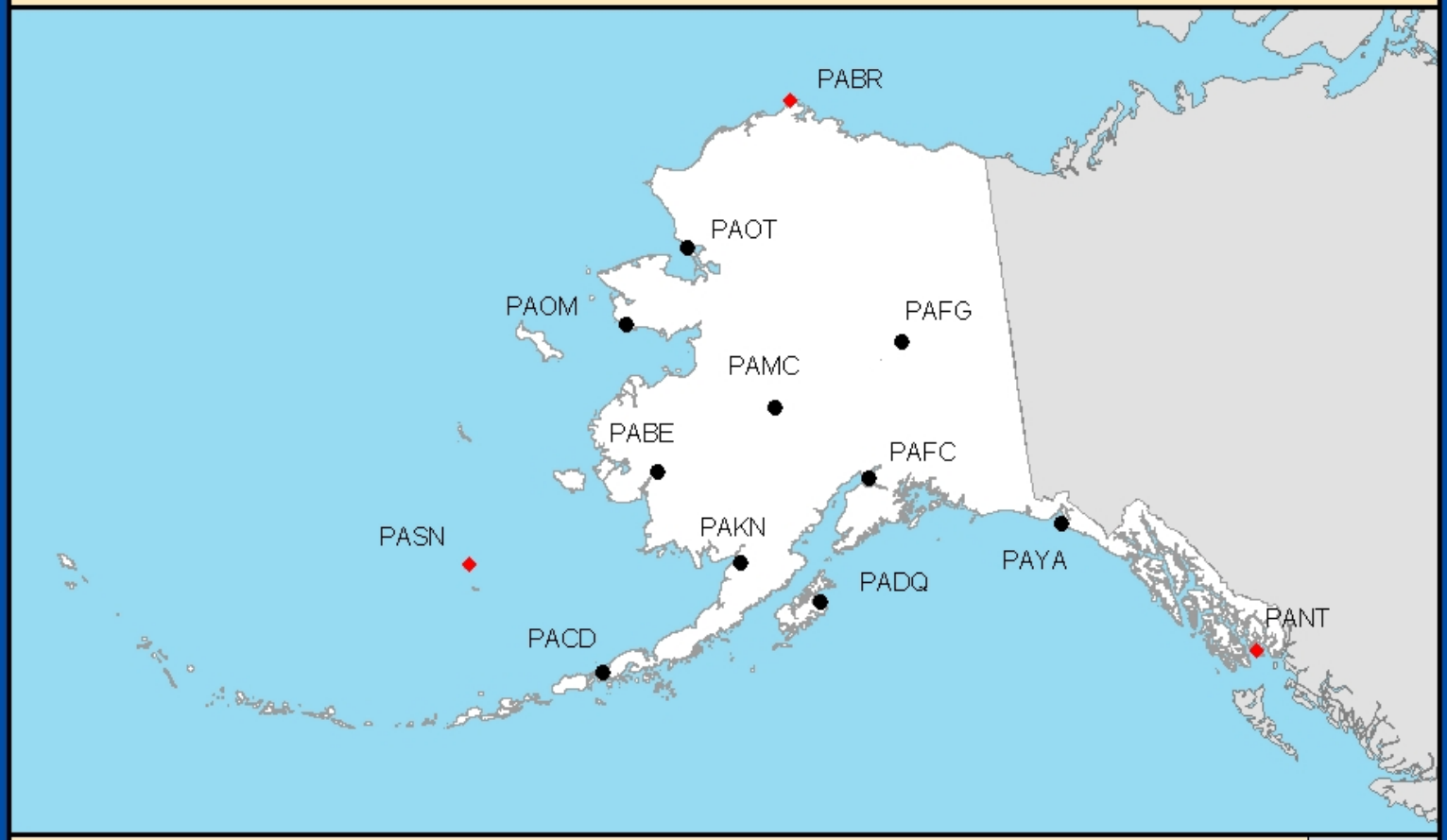


NATIONAL WEATHER SERVICE

ART-1

SEPTEMBER 2003
MIRS GIS GROUP

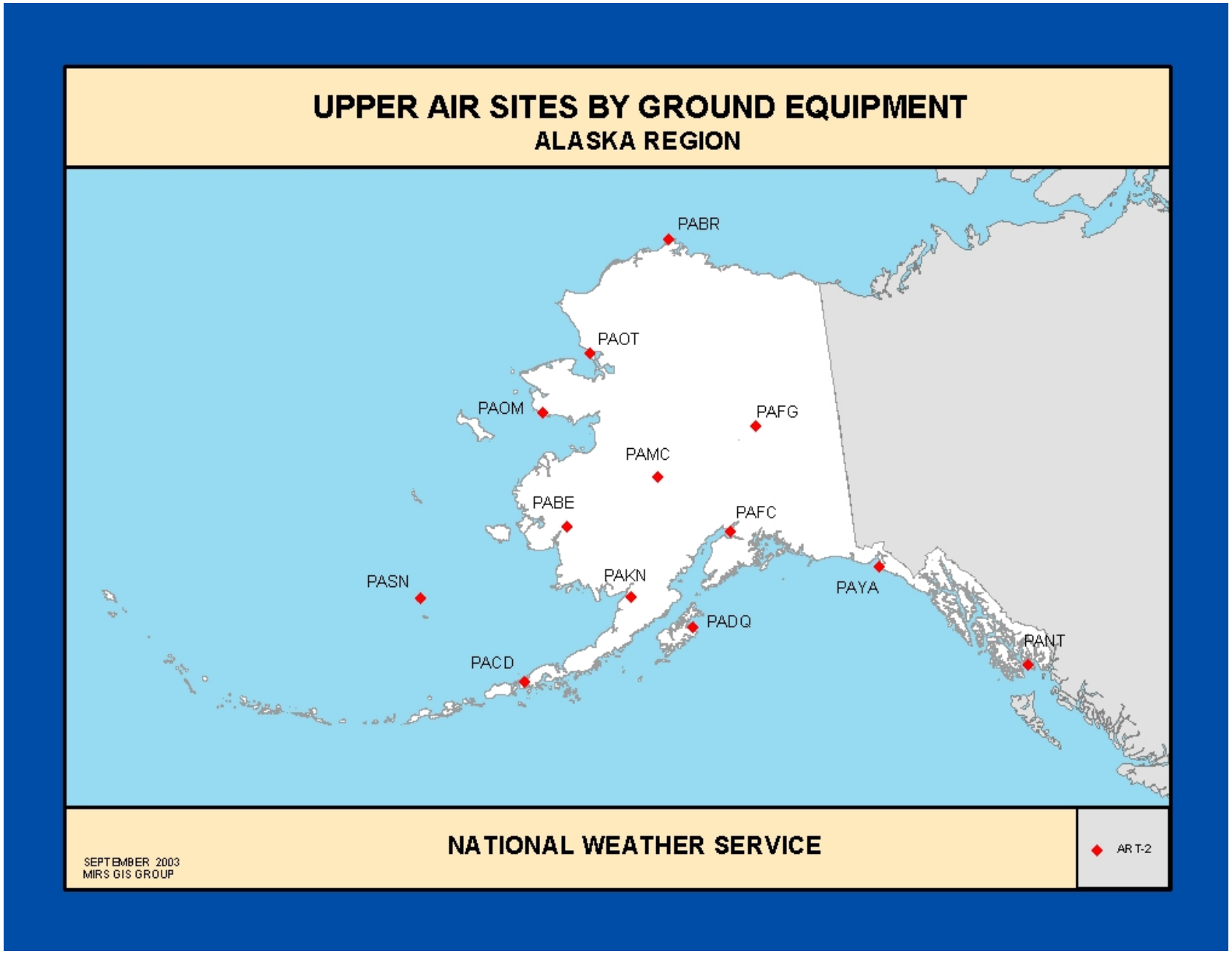
UPPER AIR SITES BY SONDE TYPE
ALASKA REGION



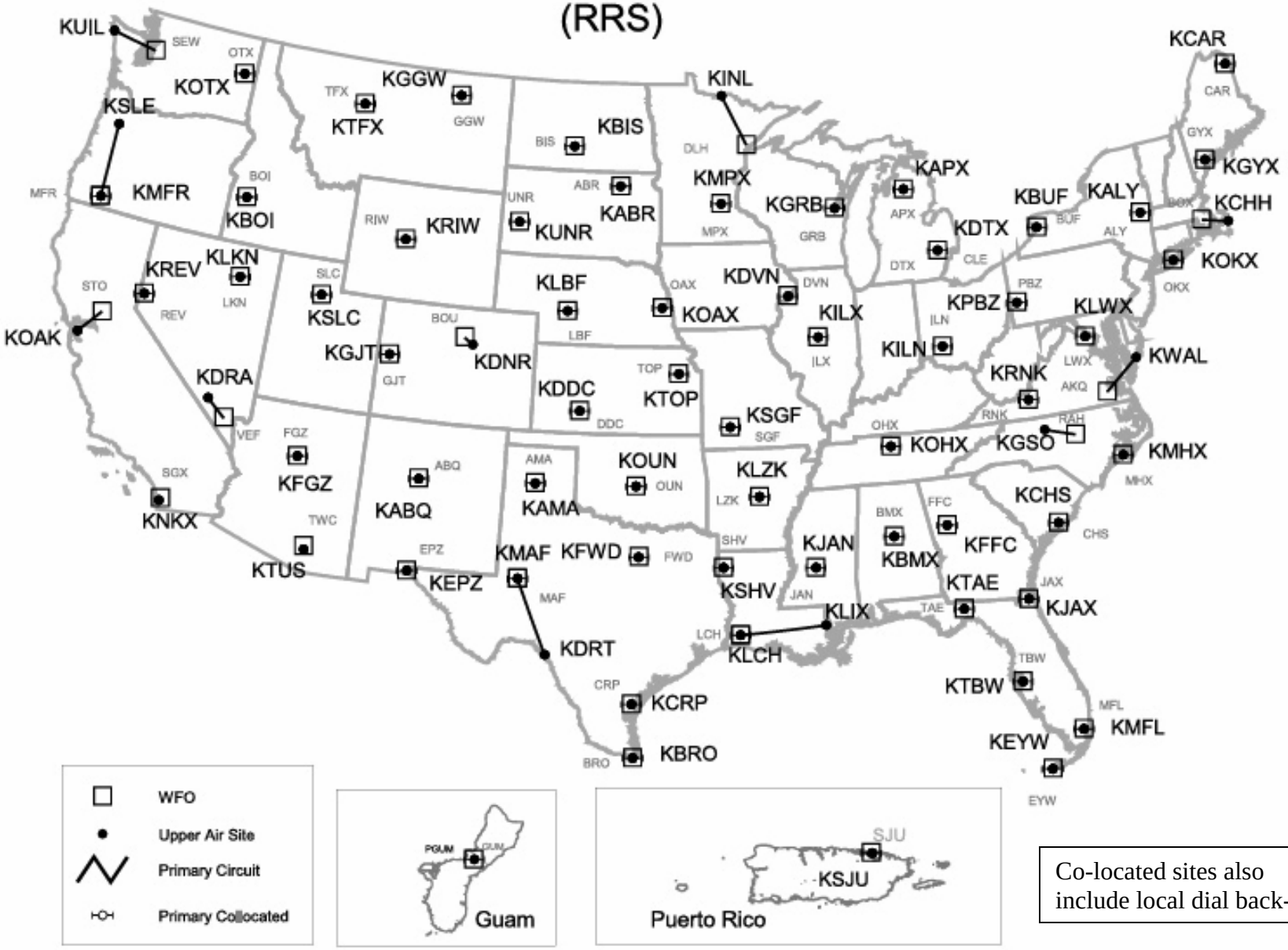
NATIONAL WEATHER SERVICE

V51
VSL52

SEPTEMBER 2003
MIRS GIS GROUP

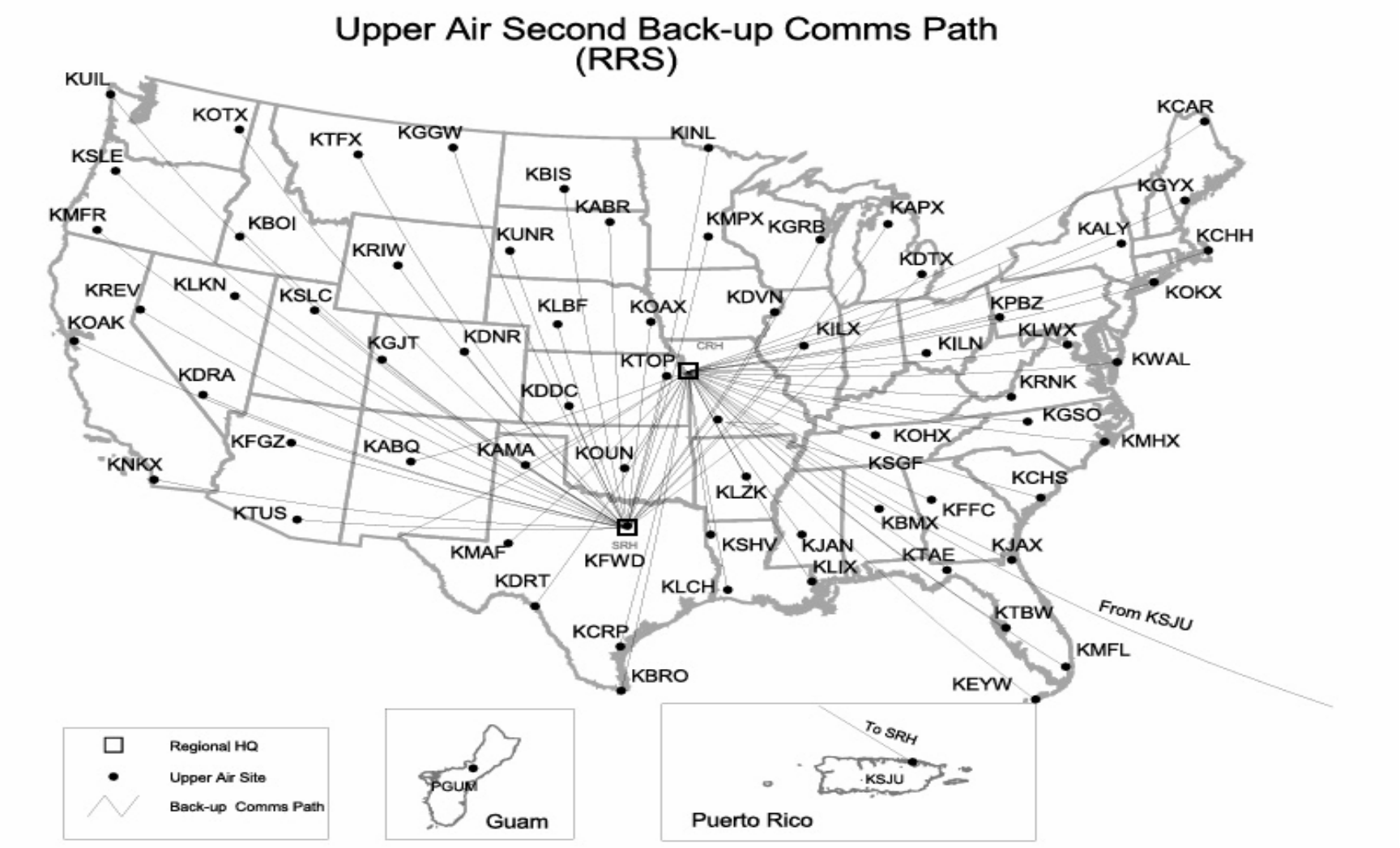

UPPER AIR SITES BY GROUND EQUIPMENT
ALASKA REGION
PABR
PAOT
PAOM
PAFG
PAMC
PABE
PAFC
PASN
PAKN
PAYA
PADQ
PANT
PACD
NATIONAL WEATHER SERVICE
SEPTEMBER 2003
MIRS GIS GROUP
ART-2

Upper Air Primary Comms Path (RRS)



Co-located sites also include local dial back-up


Upper Air First Back-up Comms Path
(RRS)
KUIL
KOTX
KTFX
KGGW
KINL
KCAR
KSLE
KBIS
KABR
KGYX
KMFR
KBOI
KUNR
KMPX
KAPX
KALY
KCHH
KGRB
KRIW
KDTX
KBUF
KLKN
KSLC
KOKX
KREV
KLBF
KOAX
KDVN
KPBZ
ERH
KOAK
KILX
KILN
KGJT
KDNR
KLWX
KWAL
CRH
KRNK
KDDC
KDRA
KSGF
KOHX
KFGZ
KTOP
KGSO
KNKX
KABQ
KAMA
KOUN
KLZK
KMHX
KBMX
KFFC
KCHS
KTUS
KEPZ
KJAN
KMAF
KFWD
SRH
KSHV
KJAX
KLIX
KTAE
KDRT
KLCH
KTBW
KCRP
KMFL
KBRO
KEYW
From KSJU
To SRH
Regional HQ
Upper Air Site
Back-up Comms Path
PGUM
Guam
Puerto Rico
KSJU


Upper Air Second Back-up Comms Path
(RRS)
KUIL
KOTX
KTFX
KGGW
KINL
KSLE
KBIS
KCAR
KGYX
KABR
KMPX
KGRB
KAPX
KMFR
KBOI
KUNR
KALY
KCHH
KRIW
KDTX
KREV
KLKN
KSLC
KLBF
KOAX
KDVN
KPBZ
KOKX
KOAK
KILX
KLWX
KGJT
KDNR
CRH
KILN
KTOP
KWAL
KDRA
KRNK
KDDC
KGSO
KFGZ
KABQ
KAMA
KOUN
KOHX
KMHX
KNKX
KSGF
KCHS
KLZK
KFFC
KTUS
KBMX
SRH
KSHV
KJAN
KJAX
KMAF
KFWD
KTAE
KLIX
KDRT
KLCH
KTBW
From KSJU
KCRP
KMFL
KBRO
KEYW
Regional HQ
Upper Air Site
Back-up Comms Path
PGUM
Guam
To SRH
KSJU
Puerto Rico

APPENDIX III-B

Commissioning Evaluation Criteria

1. Successful Completion of Site Component Acceptance		CRITERIA APPLIES TO:	INPUT PROVIDED BY:
NOTE: The following criteria are meant to serve as guidelines for the EO when conducting the commissioning evaluation. The EO should query the office staff as often as possible to determine whether these criteria are being satisfied adequately. Significant digressions requiring a commissioning note must be denoted in the Remarks section of the Commissioning Report.			
1a	**<u>Decommission/Dismantle Legacy System</u>** 1. MicroART Verify that the MicroART system has been decommissioned and dismantled. Verify all paperwork for its disposal is being completed in preparation for disposal activities. 2. W9000 Sippican System Verify that the Sippican W9000 system has been decommissioned and the system is packed for shipment to the SR&DC. Coordinate with the region on transfer of this unit to NWSH.	All	ESA
1b	**<u>Signed Acceptance Report DD250/Acceptance</u>** Verify that a copy of the System DD Form 250 (including the Inventory, Test results, deficiency reports, and CD-509s for property transactions) has been signed by a government representative of the RRS Deployment Team and a copy left with the office. Note, if the vendor could not install the cabling in the site's conduct as a result of damage or other factors and resorted to a temporary conduit above ground, this will need to documented on the DD250 as a temporary work-around and must be corrected before the site can be commissioned. All operationally significant deficiencies listed as exceptions (open items) on the signed DD Forms 250 for facilities and systems must be satisfied. If a copy of this package is not available, contact your Regional Commissioning Focal Point. After the DD Forms 250 is completed, the Radiosonde Replacement System (RRS) Acceptance Test Procedure form will be completed by the government accepting the system for field use. This will include the "Radiosonde Replacement System (RRS)	All	MIC

1. Successful Completion of Site Component Acceptance		CRITERIA APPLIES TO:	INPUT PROVIDED BY:
	Acceptance Test Procedure Report" to document the results of the test and indicate any outstanding discrepancies which remain as exceptions (i.e., caveats) following execution of the test. It will document failures, and steps taken to resolve failures. Verify this form has been signed releasing the RRS to the field office responsible for the site. Refer to the Site Implementation Plan for details.		
1c	**Major Component Verification** Verify that all components as listed in the Site Implementation Plan that were scheduled for delivery have been delivered to the site, including spare components. Do this by reviewing the equipment that should be issued to the site. There is no requirement to access internal subcomponents of the system.	All	ESA
1d	**Property Accounting** Verify the RRS has been issued a bar code and the appropriate property transaction request forms have been approved. Ensure that RRS has been bar-coded as indicated in Engineering Handbook (EHB-13).	All	ESA
1e	**Initial Consumables** Check to see that the consumables, and the quantities listed below are on-site. If these quantities are not on-site, order them and verify receipt prior to the system commissioning: 1. At least 96 GPS-radiosondes 2. At least 1 box of CDs for copying data and back-ups 3. At least 1 set of recovery CDs for ghosting the RRS software Denote the radiosonde model/vendor in use with the RRS at your upper air site in Block 4 of the Site Component Commissioning Recommendation/Approval Form. For the Sippican GPS radiosonde enter MARK IIA.	All	OPL
1f	**First Official RRS Flight** Denote in Block 5 of the Site Component Commissioning Recommendation/Approval	All	OPL

1.	Successful Completion of Site Component Acceptance	CRITERIA APPLIES TO:	INPUT PROVIDED BY:
	Form the date and time (UTC) of the first official flight from RRS. An official flight is one where the proper site WMO header was used, the observations communicated to NWS users and external customer, and the data will be archived at NCDC. Flights taken for testing the system using test headers are not considered official. Refer to item 4A for notification requirements associated with the first official RRS observation. Also be sure to enter this same information in WS Form B-29 and denote in the Remarks: First RRS Flight was Date MM/DD/YY, Time (UTC): HH		

2. Adequate Availability of Trained Operations and Maintenance Personnel		CRITERIA APPLIES TO:	INPUT PROVIDED BY:
NOTE: The following criteria are meant to serve as guidelines for the EO when conducting the commissioning evaluation. The EO should query the office staff as often as possible to determine whether these criteria are being satisfied adequately. Significant digressions requiring a commissioning note must be denoted in the Remarks section of the Commissioning Report.			
2a	**Operator Training** At least 3 upper air staff members have completed the following RRS training activities: 1. Reviewed the RRS Workstation users guide 2. Training Video 3. Familiarization of the RRS hardware	All	Upper air Staff
2b	**Maintenance Training** At least 1 Upper Air maintenance staff has completed NWSTC training course on RRS. This staff member or a regional member trained on RRS must be available during the operational period. Exceptions may be granted by the MIC in consultation with the EO. A possible exception could be a recently hired employee. Exceptions must be noted in the Remarks section.	All	ET staff
2c	**Certification Verification** Verify all station staff performing the upper air function has their operator certificates in place. If one or more certificates are missing, new ones will have to be produced and on file, before this item can be deemed satisfactory. New employees or others in training who have not received their certificates must have some one with them who is certified when using RRS. Training on RRS is acceptable for those new employees and commissioning will not be held up as a result of delays with new employee certification.	All	Upper air Staff
2d	**Operational Proficiency** All operational staff must be proficient in the use of RRS and can perform upper air observations using this system and type of radiosonde. Exceptions may be granted by the MIC. A possible exception could be a recently hired employee. Exceptions must be noted in the Remarks section.	All	Upper Air staff

2.	Adequate Availability of Trained Operations and Maintenance Personnel	CRITERIA APPLIES TO:	INPUT PROVIDED BY:
	Operational staff must be especially familiar in the areas listed below in accordance with the User's Manual: • System restart • System recovery during degraded operations • Transmission of upper air observations over different communications paths Proficiency exams must have been successfully completed by all those performing RRS operations.		
2e	**System Administrator** The system administrator responsible for system administration functions related to RRS understand and are familiar with all aspects of the RRS and its interface with other office systems, including AWIPS. The system administrator has reviewed the Systems Administrator manual. If no system administrator is assigned as a result of a recent departure, contact the Regional Commissioning Focal Point for further guidance.	All	System Administrator

3. Satisfactory Performance of System Functions and Interfaces		CRITERIA APPLIES TO:	INPUT PROVIDED BY:
NOTE: The following criteria are meant to serve as guidelines for the EO when conducting the commissioning evaluation. The EO should query the office staff as often as possible to determine whether these criteria are being satisfied adequately. Significant digressions requiring a commissioning note must be denoted in the Remarks section of the Commissioning Report.			
3a	**AWIPS-RRS Interface** Verify the RRS has been interfaced to the AWIPS through the LDAD and is providing all upper-air coded messages, correctly. Enter an "**x**" in the checklist if this is functioning correctly. If this office does not have this system, enter an "**x**" under the N/A column of the commissioning checklist.	All Co-located with AWIPS	AWIPS focal point
3b	**FAA-RRS Interface** Verify the RRS has been interfaced to the FAA communications at Pacific upper air locations and is providing all upper-air coded messages, correctly. Enter an "**x**" in the checklist if this is functioning correctly. If this office does not have this system, enter an "**x**" under the N/A column of the commissioning checklist.	Pacific sites	Regional comms focal point
3c	**Internet Connectivity** Verify the Internet has been connected to the RRS for the downloading of security upgrades in accordance with office, regional and national policies. Enter an "**x**" in the checklist if this is functioning correctly. If this site has not connected to the Internet, then enter an "**x**" under the N/A column of the commissioning checklist and verify the method the RRS site will be receiving security upgrades. Document this in the Remarks section.	All	System Administrator
3d	**Automated Surface Observing System/Other Surface Systems** For sites not having RSOIS, enter an "**x**" next to the entry for ASOS on the commissioning checklist. If a non-ASOS system is being used, denote which system will be used in the Remarks section.	Sites without RSOIS	OPL
3e	**RSOIS Interface to RRS** Verify the RSOIS has been connected directly into the RRS and that surface observations for temperature/relative humidity/wind are being entered and displayed correctly on the	Sites having RSOIS	OPL

3.	Satisfactory Performance of System Functions and Interfaces	CRITERIA APPLIES TO:	INPUT PROVIDED BY:
	RRS workstation. Enter an "**x**" next to the entry for RSOIS on the commissioning checklist if this interface is active; otherwise, enter an "**x**" under N/A.		
3f	**PDB Interface to RRS** Verify the PDB has been connected directly into the RRS and that surface pressure observations are being entered and displayed correctly on the RRS workstation, automatically. Enter an "**x**" next to the entry for PDB on the commissioning checklist.	All	OPL
3g	**Printer Function** Verify the printer delivered with the RRS is functional and can produce images and office-generated RRS products, clearly. Acquire necessary supplies if the printer is not functioning properly with respect to color, and black and white reproductions. Normal operation of the printer must not cause the workstation to "lock-up," whereby a cold or warm restart of the system is necessary. If this becomes a frequent event, i.e., more than once during the evaluation period, the cause should be determined and a solution found before deeming these procedures satisfactory. Frequent lock-ups are cause for a lack of reliability and must be brought to the attention of the regional upper air staff. Enter an "**x**" in the checklist if this is functioning, correctly.	All	OPL
3h	**System Administration Functions** Verify the system administrator can: – **install and initialize the Workstation application software, including OBIT.** – update the software with new revisions without impacting the database, adversely – apply new security updates to the software in accordance with agency policy and procedure – **update master station data with information from NWS headquarters.** – **update local station data.** – **recover the database from the back-up media when new software is**	All	System Administrator

3.	Satisfactory Performance of System Functions and Interfaces	CRITERIA APPLIES TO:	INPUT PROVIDED BY:
	installed or after system failure **– set the time on the Workstation** **Enter an "x" in the checklist if these are functioning, correctly.**		
3i	**Flight Management** Verify the following flight management features can be exercised on the workstation: **– view a complete list of the flights currently stored in the local database.** **– select one or more flights for deletion from the local database if they have been archived** **– select a flight to be "exported" for transfer to another machine in order to do rework.** **– select a flight for retransmission of messages.** **– select whether the WMO coded messages, the RADAT message, or both are retransmitted.** **– prevent the observer from modifying the messages within this utility; rather they will have to enter Rework mode to be able to perform that function.** **– enable an observer to select a Live flight that was not flown (within a time limit) in order to transmit a standard Coded message for "flight not flown."** **– allow any observer to use the export and retransmit functions. But, only observers with Site Manager or Site Administrator privileges may access the other functions.** Enter an "**x**" in the checklist if these are functioning, correctly.		

3.	Satisfactory Performance of System Functions and Interfaces	CRITERIA APPLIES TO:	INPUT PROVIDED BY:
3j	**Localization of Site-Specific Data** Verify that the site-specific, i.e., Station, data have been incorporated into the RRS workstation databases and are representative of the site configuration. At a minimum, the following Station data refers to the set of infrequently changing data items that pertain to a specific upper-air site such as: **– Station Name, ID, WMO #** **– latitude, longitude, and elevation;** **– Barometer elevation;** **– Radiosonde type, receiver type, and tracking method;** **– Workstation software version;** **– Base Pressure; Release Point pressure correction, latitude, longitude, and elevation;** **– Ground equipment;** **– Surface Observation Equipment type and location from release point;** **– Balloon shelter type; and** **– host computer phone numbers.** Some site specific information (i.e., Master Station Data) are maintained at NWS headquarters and can only be updated at the site as new versions sent from headquarters. Upper-air sites will be allowed to load and modify non-master station data via the Station Data Utility. Enter an "**x**" in the checklist if these are functioning, correctly.	All	OPL

4.	Satisfactory Support of Associated NWS Forecast and Warning Services	CRITERIA APPLIES TO:	INPUT PROVIDED BY:
NOTE: The following criteria are meant to serve as guidelines for the EO when conducting the commissioning evaluation. The EO should query the office staff as often as possible to determine whether these criteria are being satisfied adequately. Significant digressions requiring a commissioning note must be denoted in the Remarks section of the Commissioning Report.			
4a	**Public Notification Notice (PNS)** Verify a PNS was issued from your site alerting NWS customers of the first official observation with RRS. If for some reason a PNS was not issued, ensure one is prepared alerting users as to when first use of the RRS began. Denote the date and time of the first official observation, i.e., the observation transmitted over the telecommunication network with official WMO headers, in the commissioning report under Block 4.	All	MIC
4b	**RRS Activation, Baselining, Launch Procedures** Verify during the operational phase that the following functions reliably in support of field operations: 1. Activate the ground system, perform interface checks, and orient the antenna to track the radiosonde 2. Enter all pertinent pre-flight information for conducting the observation 3. Baseline the radiosonde and acquire the GPS signals for computing winds 4. Complete remaining set-up steps in preparation for radiosondes flights train launch 5. Launch and balloon flight train and have RRS detect launch Denote the number of rejected RRS radiosondes on the H-6 and verify that no more than 5 radiosondes have been rejected during the evaluation period. If more than this number has been rejected contact your regional focal point for further guidance. The activation, baseline, and launch procedures must not cause the workstation to "lock-up," whereby a cold or warm restart of the system is necessary. If this becomes a frequent event, i.e., more than once during the evaluation period, the cause should be determined and a solution found before deeming this procedure satisfactory. Frequent lock-ups are cause for a lack of reliability and must be brought to the attention of the regional upper air staff. Enter an "**x**" in the checklist if these are functioning, correctly.	All	OPL

4.	Satisfactory Support of Associated NWS Forecast and Warning Services	CRITERIA APPLIES TO:	INPUT PROVIDED BY:
4c	**In-flight Functions** Verify the workstation, upon detecting the start of the flight, begins receiving in-flight data including: temperature, relative humidity, pressure data, position (latitude and longitude), and wind data (smoothed and unsmoothed u & v) and processes these into one-second intervals from release time. If the launch was deemed unsuccessful under the guidance of the revised WSOH No. 10, release another balloon, when authorized. The following is guidance for the 30 consecutive-days evaluation period: Number of failed releases during the operational period - no more than 3 Number of second releases during the operational period - no more than 3 Number of third releases during the operational period - no more than 2 Number of missed flights during the operational period - no more than 2 Note, flight failures due to new operators not understanding a procedure, correctly, or inducing one by mistake will not be counted against RRS. The following launches may occur at any time and may require operator intervention to acquire the flight train: – Balloon crosses overhead – Corkscrew case – Balloon moves in opposite direction than anticipated, i.e., 90-degrees, 180-degrees – Low stratus/fog causing balloon to disappear quickly – Balloon dips below launch point upon release or moves laterally – High-wind: >20kts, >30kts, >40kts The operator can use the search mode and the Hodograph plot along with other position information to locate the strongest signal and re-acquire the radiosonde. The transition from WAGS-to-NAGS doesn't cause excessive loss of lock with the radiosonde/GPS signal or cause the flight to fail. This may result in the operator having to take action to re-acquire the radiosonde after being alerted by the Workstation.	All	OPL

4.	Satisfactory Support of Associated NWS Forecast and Warning Services	CRITERIA APPLIES TO:	INPUT PROVIDED BY:
	The Workstation identifies flights as successful or unsuccessful. If the launch was deemed unsuccessful under the guidance of the revised WSOH No. 10, release another balloon, when authorized. Check the ascension number/release information for correctness. The post-launch procedures/situations must not cause the workstation to "lock-up," whereby a cold or warm restart of the system is necessary. If this becomes a frequent event, i.e., more than once during the evaluation period, the cause should be determined and a solution found before deeming this procedure satisfactory. Frequent lock-ups are cause for a lack of reliability and must be brought to the attention of the regional upper air staff.		
4d	**Observer Interaction In Flight** Each observer can perform the following functions while in-flight: **– view upper air data, and levels data row by row.** **– mark processed data via the tabular display to eliminate it from processing.** **– select and display additional calculated parameters.** **– display the status of the flight (including data check messages)** **– display pre-release information, and station information.** **– select additional levels and deletes levels.** **– view predefined and customizable data plots and overlays.** **– prints plots, tabular data, and status displays.** **– observer can change the original values. processes temperature, relative humidity, and pressure and wind values from surface through flight termination to select levels.** **– select thermodynamic levels, winds levels, freezing level, and tropopause levels** **– compare the current flight's levels with the previous flight's**	All	OPL

4.	Satisfactory Support of Associated NWS Forecast and Warning Services	CRITERIA APPLIES TO:	INPUT PROVIDED BY:
	levels during levels generation. **– continually monitor for the presence or absence of GPS data.** **– when GPS data is present, the Workstation completes the calculation of winds information using GPS data. (i.e., wind speed and direction). If wind data is not available, other processing will continue. GPS data will be checked for erratic changes between samples and to ensure that each sample falls within acceptable ranges.** **– automatically calculates meteorological parameters, archive, and display products and calculate radiosonde operational parameters such as altitude, and ascension rate to support the creation of messages,.** **– terminates a flight as a result of conditions such as balloon burst, weak signal, excessive missing data, floating balloon, icing, or radiosonde failure or when requested by an observer.** **– detects, when the Workstation is re-booted, whether a live flight completed processing (e.g., Was there a power failure before the flight summary data was saved?). In such a case, the Workstation takes the observer directly to the "after termination" step for termination processing.** The following conditions could occur in-flight and may require operator interaction based on indicators from the workstation: – Pressure sensor failure – Temperature sensor failure – RH sensor failure – Radiosonde failure, any number of reasons – No GPS for flight or it cuts out at some point in the flight		

4.	Satisfactory Support of Associated NWS Forecast and Warning Services	CRITERIA APPLIES TO:	INPUT PROVIDED BY:
	– Ground system failure – Balloon descends/reascends due to icing, downdraft, or shortly after launch The Workstation determines whether a flight is successful or not, automatically. A successful flight is one that reaches 400 hPa and does not exceed the maximum amount of missing data allowed. If the flight was unsuccessful, the flight is either terminated by the operator or the system terminates the flight, automatically. However, the number of flights reaching 400 hPa, 20 hPa, and 10 hPa should be commensurate with the legacy system. Normal operation of the RRS while the radiosonde is in flight must not cause the workstation to "lock-up," whereby a cold or warm restart of the system is necessary. If this becomes a frequent event, i.e., more than once during the evaluation period, the cause should be determined and a solution found before deeming these procedures satisfactory. Frequent lock-ups are cause for a lack of reliability and must be brought to the attention of the regional upper air staff.		
4e	**Coded Message Generation** The RRS can create the following coded messages, reliably: - All RADAT messages - All PARTs A/B messages - All PARTs C/D messages The workstation automatically issues the message upon a predetermined threshold, e.g., RADAT issued at 400 hPa, or the operator causes the message to be sent through a direct command to the workstation. The observer can cause the messages to be generated and also correct a WMO message prior to 6 hours after the flight termination or prior to the next ascension, whichever is earlier and retransmit it to the host computer. Verify on a select number of flights that the following code group is being appended, correctly: **31313 58709**, indicating the solar radiation correction, radiosonde type, and	All	OPL

4.	Satisfactory Support of Associated NWS Forecast and Warning Services	CRITERIA APPLIES TO:	INPUT PROVIDED BY:
	ground system for RRS. Creation of the above products, while the radiosonde is in flight, must not cause the workstation to "lock-up," whereby a cold or warm restart of the system is necessary. If this becomes a frequent event, i.e., more than once during the evaluation period, the cause should be determined and a solution found before deeming these procedures satisfactory. Frequent lock-ups are cause for a lack of reliability and must be brought to the attention of the regional upper air staff.		
4f	**RRS/Host Computer Transmissions** The RRS must transmit the following data, reliably: - All RADAT messages - All PARTs A/B messages - All PARTs C/D messages The workstation automatically issues the message upon a predetermined threshold, e.g., RADAT issued at 400 hPa, or the operator causes the message to be sent through a direct command to the workstation. The observer can correct a WMO message prior to 6 hours after the flight termination or prior to the next ascension, whichever is earlier and retransmit it to the host computer. Verify that all messages sent from your site are not being stored multiple times in AWIPS so that it causes disruption in AWIPS operations. This means AWIPS is successfully eliminating multiple copies of the same upper air message. At least 8 previous versions of the same message type can reside within AWIPS for retrieval. Transmission of the above products, while the radiosonde is in flight, must not cause the workstation to "lock-up," whereby a cold or warm restart of the system is necessary. If this becomes a frequent event, i.e., more than once during the evaluation period, the cause should be determined and a solution found before deeming these procedures satisfactory. Frequent lock-ups are cause for a lack of reliability and must be brought to the attention of the regional upper air staff. When the operational period begins, the site will evaluate reliability of upper air products	All	OPL

4.	Satisfactory Support of Associated NWS Forecast and Warning Services	CRITERIA APPLIES TO:	INPUT PROVIDED BY:
	from the above categories mentioned over a 30-day period. Performance is expected to be 98.5 % or better for the sample period from the AWIPS site to the Network Control Facility and arrive within 1.0 minutes on the average. NWSH will inform the site if these performance measures are not being met. Performance statistics will also be available from NCEP through the Radiosonde web-page as is currently done for MicroART. If NWSH indicates the performance is less than expected, then additional time will be needed to validate that the site RRS is operating at the stated levels.		
4g	**Flight Termination Procedures** Verify the observer can select at any time during the flight to terminate the flight immediately. The RRS workstation will automatically terminate a flight when certain events occur, e.g., balloon burst or radiosonde failure. For each flight taken during the evaluation period, determine the reason the flight data was terminated, and document this on the B-29 form. At the end of the evaluation period, compare the data on this form with that from the most recent legacy system B-29 forms. The number of flights terminated for balloon burst should be equal to or greater than before. Other reasons for termination should be comparable to earlier performance. Verify that the reason for termination is accurate. If the data/plots suggest a different reason ought to be used, verify that the reason for termination can be modified to reflect the actual reason. The change should be verified in the Flight Summary. The Flight Summary Information consists of calculated parameters according to WMO, Regional, and National criteria, and is more detailed than the Level Selection required and used for WMO coded messages: **– temperature/relative humidity minimums and maximums,** **– pressure/temperature/relative humidity values at termination,** **– altitudes at various pressure levels, and** **– ascension rates that are calculated or measured during a flight.** **– whether the flight was "successful" or not and termination times**	All	OPL

4.	Satisfactory Support of Associated NWS Forecast and Warning Services	CRITERIA APPLIES TO:	INPUT PROVIDED BY:
	and reason. The Flight termination procedures or shutdown procedure must not cause the workstation to "lock-up," whereby a cold or warm restart of the system is necessary. If this becomes a frequent event, i.e., more than once during the evaluation period, the cause should be determined and a solution found before deeming the shutdown procedure satisfactory. Frequent lock-ups are cause for a lack of reliability and must be brought to the attention of the regional focal point.		
4h	**Data Storage** Local data storage consists of the entire flight data used for Rework purposes. The data is kept on-line and the observer must be able to store it on media. Verify the data are: **– stored when generated after the flight.** **– stored on a removable media for at least 31 days** **The storing of post-flight upper air data must not cause the workstation to "lock-up," whereby a cold or warm restart of the system is necessary. If this becomes a frequent event, i.e., more than once during the evaluation period, the cause should be determined and a solution found before deeming these procedures satisfactory. Frequent lock-ups are cause for a lack of reliability and must be brought to the attention of the regional upper air staff.**	All	OPL
4i	**AWIPS Applications Verification** Verify, through consultation with your Science Operations Officer, that the upper air decoder functions correctly within the site AWIPS. Do this with your very first special flight and then periodically throughout the evaluation period. Verify through contact with office forecast staff or the Scientific Operations Officer that upper air observations transmitted to AWIPS can be displayed on the AWIPS workstation.	Col-located with AWIPS sites	Forecaster staff

4.	Satisfactory Support of Associated NWS Forecast and Warning Services	CRITERIA APPLIES TO:	INPUT PROVIDED BY:
	The AWIPS must be able to produce skew-T/log-P graphic plots that include the pressure/height level of the: – **temperature and dew-point values** – **lifting condensation level** – **convective condensation level** – **convective temperature** – **level of free convection** – **equilibrium level** The AWIPS can also compute single site sounding parameters derived from the input sounding data, and can produce a hodograph graphic product along with derived parameters from the hodograph analyses. Verify the upper air products can be used with non-AWIPS local applications used by the office.		
4j	**Power Fail Recovery** The observer can "resume the flight" if there has been a power failure. The RRS workstation is restarted and the "after termination" step for flight termination processing commences. **Note, the site is to not induce this failure.** If this situation occurs during the evaluation period, then determine if the flight data was processed correctly, and denote this as satisfactory on the checklist. If the flight data was not processed correctly, then make note of it. If another instance occurs, report it to your regional upper air focal point. If this situation did not occur during the evaluation period, then deemed it "not-applicable" in the checklist.	All	OPL
4k	**Reworking a Flight** Reworking a flight means an observer can edit the data from a previous flight the same as during a live flight, and under certain circumstances, to resend WMO messages to AWIPS. The following actions occur during the Rework mode and are different from a Live flight: – **selects a previous flight by ascension number or release time.**	All	OPL

4.	Satisfactory Support of Associated NWS Forecast and Warning Services	CRITERIA APPLIES TO:	INPUT PROVIDED BY:
	– use current station data or the station data associated with a previous flight. **– view all pre-flight data and modify the surface data.** **– transmit all coded messages and verify corrected headers have been applied** **– change the flight termination time by deleting data at the end of the flight or selecting a time to terminate the flight.**		
4l	**<u>Archiving Flights</u>** The site can perform the following archiving functions, locally: - request any archive data from the archive directory - retrieve data stored on archive media - identify any data to be archived. - display a list of data resident on archive media - automatically archive all Official User Products issued by the site and retain each product for the most recent 31 days - automatically archive other products issued by the site and retain each product for the most recent 31 days - automatically archive all observations and retain each observation The archiving of post-flight upper air data must not cause the workstation to "lock-up," whereby a cold or warm restart of the system is necessary. If this becomes a frequent event, i.e., more than once during the evaluation period, the cause should be determined and a solution found before deeming these procedures satisfactory. Frequent lock-ups are cause for a lack of reliability and must be brought to the attention of the regional upper air staff.	All	OPL
4m	**<u>Transmitting Archived Flights</u>** Ensure that NCDC is able to receive the archive files after <u>each</u> flight. The site must also verify that if archive files were transmitted to NCDC, successfully, on a different day than	All	OPL

4.	Satisfactory Support of Associated NWS Forecast and Warning Services	CRITERIA APPLIES TO:	INPUT PROVIDED BY:
	when the flight was actually taken. Check with NCDC to verify receipt of all archive files for the evaluation period. Visit the following URL for details on receipt of archive files: http://www1.ncdc.noaa.gov/pub/data/ua/RRS/		
4n	**Overall Performance** Verify RRS is providing as good or better performance than the legacy system it replaced. To ascertain this, use the B-29, B-85, and H-6 forms and compare them with the latest forms for the legacy system it replaced. The results of this comparison should indicated as good or better performance with RRS over the legacy system. IF this is not the case, inform the regional focal point for further guidance.	All	OPL

5.	Proper Functioning of System Back-ups	CRITERIA APPLIES TO:	INPUT PROVIDED BY:
NOTE: The following criteria are meant to serve as guidelines for the EO when conducting the commissioning evaluation. The EO should query the office staff as often as possible to determine whether these criteria are being satisfied adequately. Significant digressions requiring a commissioning note must be denoted in the Remarks section of the Commissioning Report.			
5a	**Primary Dial Back-up to Local LDAD/LAN Connection** Verify the workstation can transmit the RADAT, Parts A&B, and Parts C & D with the correct WMO headers to the NOAAPORT and NCEP using the primary on-site backup. Note, product headers for upper air products issued over backup communications will remain the same as if the original site was performing the communication of these products. Verify with office staff that the products issued over the backup communications link have successfully arrived into the site AWIPS. Procedure Set the transmission on the workstation to the primary dial backup. Do this at least twice during the evaluation period. Afterwards, do not change the transmission setting, unless it is deemed necessary. The backup transmission procedure must not cause the system to "lock-up," whereby a cold or warm restart of the system is necessary. If this becomes a frequent event, i.e., more than once during the evaluation period, the cause should be determined and a solution found before deeming this procedure satisfactory. Frequent lock-ups are cause for a lack of reliability and must be brought to the attention of the regional upper air staff.	AWIPS Sites	OPL
5b	**First Off-Site Back-up to Local LDAD** Verify the workstation can transmit the RADAT, Parts A&B, and Parts C & D with the correct WMO headers to the NOAAPORT and NCEP using the the first off-site backup. Note, product headers for upper air products issued over backup communications will remain the same as if the original site was performing the communication of these products. Verify with office staff that the products issued over the backup communications link have successfully arrived into the site AWIPS.	AWIPS Sites	OPL

5.	Proper Functioning of System Back-ups	CRITERIA APPLIES TO:	INPUT PROVIDED BY:
	Procedure Set the transmission on the workstation to the secondary backup. Do this at least twice during the evaluation period. Afterwards, do not change the transmission setting, unless it is deemed necessary. The backup transmission procedure must not cause the system to "lock-up," whereby a cold or warm restart of the system is necessary. If this becomes a frequent event, i.e., more than once during the evaluation period, the cause should be determined and a solution found before deeming this procedure satisfactory. Frequent lock-ups are cause for a lack of reliability and must be brought to the attention of the regional upper air staff.		
5c	**Second Off-Site Backup to Local LDAD** Verify the workstation can transmit the RADAT, Parts A&B, and Parts C & D with the correct WMO headers to the NOAAPORT and NCEP using the third backup. Note, product headers for upper air products issued over backup communications will remain the same as if the original site was performing the communication of these products. Verify with office staff that the products issued over the backup communications link have successfully arrived into the site AWIPS. Procedure Set the transmission on the workstation to the third backup. Do this at least twice during the evaluation period. Afterwards, do not change the transmission setting, unless it is deemed necessary. The backup transmission procedure must not cause the system to "lock-up," whereby a cold or warm restart of the system is necessary. If this becomes a frequent event, i.e., more than once during the evaluation period, the cause should be determined and a solution found before deeming this procedure satisfactory. Frequent lock-ups are cause for a lack of reliability and must be brought to the attention of the regional upper air staff.	AWIPS Sites	OPL

5.	Proper Functioning of System Back-ups	CRITERIA APPLIES TO:	INPUT PROVIDED BY:
5d	**Backup for Non-AWIPS Sites** Verify the workstation can transmit the RADAT, Parts A&B, and Parts C & D with the correct WMO headers to the backup system, if applicable. Note, product headers for upper air products issued over backup communications will remain the same as if the original site was performing the communication of these products. If there is no backup to this site, denote it in the Remarks as "non-applicable."	Non-AWIPS Sites	Local Staff

6.	Adequate Documentation for Operations and Maintenance	CRITERIA APPLIES TO:	INPUT PROVIDED BY:
NOTE: The following criteria are meant to serve as guidelines for the EO when conducting the commissioning evaluation. The EO should query the office staff as often as possible to determine whether these criteria are being satisfied adequately. Significant digressions requiring a commissioning note must be denoted in the Remarks section of the Commissioning Report.			
6a	**Operations Documentation** Verify the following documentation is on site and available to the observing staff: 1. RRS Workstation User Guide 2. WSOH - 10 updated for the RRS If your site does not have a copy of this document, contact your regional upper air focal point. A copy must be on site to consider these criteria met.	All	OPL
6b	**Technical Documentation** Verify the following technical documentation is available to the maintenance staff: 1. Site Implementation Plan 2. RRS technical materials delivered with the RRS and provided from the NWSTC 3. Access to the Engineering Handbook web site for system diagnostics and system administration	All	ESA
6c	**Station Duty Manual Updated** Verify the SDM has been updated for your site reflecting any procedural changes as a result of RRS installation. If non have occurred, then enter an "x" under N/A.	All	OPL

APPENDIX III-C

Commissioning Evaluation Instructions and Forms

July 2005

RRS Commissioning Evaluation Package for NWS Field Office Use

Table of Contents

1 Introduction

The Radiosonde Replacement System (RRS) Commissioning Evaluation Package provides the instructions, responsibilities and forms used by the Evaluation Official (EO) at field offices for conducting and documenting the commissioning evaluation.

General Overview

The *Commissioning process* is performed at each office to verify its ability to commission the (RRS). The *Commissioning evaluation* is, thus, a series of checklist items to be verified, satisfactorily, during the commissioning process conducted at the field site. As each checklist item is deemed satisfactory, it is checked off from the list. In a number of cases, checklist items may be considered "non-applicable" to the office environment; in which case, these items would not be evaluated. Checklist items not considered satisfactory are handled in several ways as follows:

- The problem is corrected on-site through procedure or other action
- No correction to the problem is imminent, and as a result, further action is required

Each of these options will be discussed more in detail below. In any case, no unsatisfactory items are allowed to remain. Instead, RRS commissioning is suspended until the problem(s) is/are resolved.

Once the evaluation is finished, successfully, the EO completes the enclosed forms and assembles them into the *Commissioning Readiness Report (CRR).* The office management, i.e., Meteorologist-in-Charge (MIC), signs the report recommending approval and then forwards it to the region. The regional Commissioning Focal Point reviews and makes any corrections as necessary. Then, the Regional Director (RD) signs the report, indicating final approval of the CRR. The original report is then sent to NWSH **via express mail** for filing with a copy left at the region.

The site will issue the date and time indicated in a Public Notification Statement (PNS) or Technical Information Notification (TIN) indicating the first official use of RRS.

- **Content of Package**

The Commissioning Evaluation Package consists of the following:

Commissioning Readiness Report Cover Page

- The Commissioning Report Cover Page (included in this appendix).
- Instructions for completion of the cover page (see Section 2)

Commissioning Recommendation/Approval Forms

- Description of the Commissioning Recommendation/Approval Forms
- The Commissioning Recommendation/Approval Form (included in this appendix).
- Instructions for completion of the recommendation/approval form (see Section 2)

RRS Commissioning Checklist

- RRS Commissioning Checklist (included in this appendix)
- Commissioning Evaluation Criteria (Appendix III-B) used for providing guidelines to the EO
- General instructions for completing the checklist (see Section 2).

Appendix III-B provides the Commissioning Evaluation Elements and Criteria used by the EO to perform the evaluation during the commissioning evaluation period, normally, no more than one month in duration. The elements and criteria are the guidelines for assisting the EO during the process. When all the pertinent criteria for the site have been successfully met, the Commissioning report is prepared and ready for review and approval.

- **Required Background Reading**

Since commissioning of RRS is intertwined with its installation, the RRS Site Installation Plan, is required reading for all Commissioning EOs. These plans provide an overview of the entire RRS deployment process from the descriptions of RRS and how it will be interfaced to other office systems.

- **Responsibilities for Conducting the Site Evaluations**

The responsibilities for the conduct of evaluations are as follows:

- **RRS Systems Commissioning Manager (SCM)**: The Office of Operational Systems/Field Systems Operations Center/Observing Systems Branch (OPS22) is responsible for overall management of the Commissioning process. Specifically:

  a. Distributes web versions of the RRS Site Component Commissioning Plan to the appropriate Regional Focal Point.

  b. Provides guidance and support, if necessary, in the resolution of deficiencies which can be addressed with Regional/NWSH resources; coordinates and approves solutions in need of NWSH involvement; serves as approval authority for regionally/locally-developed commissioning notes.

  c. Tracks the status of the commissioning and reports to NWS management as required.

- **Regional Commissioning Focal Point**: The Regional Commissioning Focal Point is responsible for the management of all commissioning activities within their region.

  Specifically, each Regional Focal Point:

  a. Provides web site for downloading evaluation packages to the site staff.

  b. Coordinates the resolution of deficiencies which can be addressed by Regional/NWSH resources and obtains approval for the solutions.

  c. Coordinates the resolution of deficiencies requiring NWSH involvement with the in preparation for Regional Director signature.

  d. Reports status of commissioning activities in the region to Regional Management.

- **MIC**: The MIC is responsible for overall management of the commissioning activities within the MIC's geographic area of responsibility.

Specifically, each MIC:

a. Designates an individual to serve as EO and establishes the date and time of the first official upper air observation from the RRS.

b. Provides the EOs with guidance and support, as required, in the resolution of deficiencies which would result in an unsatisfactory rating.

c. Reviews and confirms the completeness and accuracy of the commissioning report by signing the report and forwarding it to the Regional Commissioning Focal Point.

- **EO:** The EO is responsible for the conduct of the commissioning readiness review. In particular, the EO:

  a. Conducts the evaluation, with assistance from appropriate operations, maintenance, and system administration personnel, and indicates evaluation elements are satisfactory by appropriate entries in the Commissioning checklist for the site.

  b. Initiates actions as required, in coordination with the MIC, to correct deficiencies uncovered during the evaluation.

  c. Compiles the commissioning report for MIC signature; confirms the completeness and accuracy of the evaluation by signing it; retains copies of the report and supporting materials; and transmits the **original** to the region.

  d. Reports on status of commissioning activities to the region.

2 Instructions for Completing the Commissioning Report

Below are instructions for completing each of the forms comprising the Commissioning Readiness Report. Electronic copies of each portion of the report, in a Word or PDF format, will be made available to the site through the world-wide-web at:

HTTP://WWW.UA.NWS.NOAA.GOV

- **Commissioning Readiness Report Cover Page**

The Commissioning Report cover page is included in Appendix I-B to this addendum. In most cases, the information in blocks 1 through 4 will be self explanatory. The remaining portions of the documentation will be discussed below. Appendix I-C provides a an example of a completed cover page.

Steps in completing the cover page are:

Step 1. Type the **Office SID** and **Office Name**, information onto the cover.

Step 2. Type the **Office Type** as follows: WFO or NWSO/DCO.

Step 3. The approving official will be the Regional Director.

Step 4. The **Actual Date Commissioned** will be completed after the Commissioning event has occurred, i.e., the system is activated commissioned with the issuance of either the TIN or PNS. Enter the time for the first observation time.

- **Commissioning Checklist**

The Commissioning evaluation criteria (Appendix III-B) are the detailed set of guidelines used by the EO to determine compliance with the site requirements. Read the criteria carefully for a clear understanding of what is being asked. If you have about any aspect of the criteria, call your regional FP. The Commissioning Checklist (this forms at the end of this appendix) reflects the evaluation criteria, which are grouped into several categories:

- Successful Completion of Site Component Acceptance Test
- Adequate Availability of Trained Operations and Maintenance Personnel Staff
- Satisfactory Performance of System Functions and Interfaces
- Satisfactory Support of Associated NWS Forecast and Warning Services
- Proper Functioning of System Back-ups
- Adequate Documentation for Operations and Maintenance

During its evaluation, the RRS will be operated continuously in its **operational mode**, i.e., coded messages transmitted**.**

The EO will draw on the expertise, assistance, and input of their NWS office staff, as required, while performing the evaluation. This is because the EO is not expected to be an expert on all the commissioning criteria. Suggested inputs from various staff are included to the right of each criteria as well as to what type of office it applies to. Some items require forecaster input, while others require input from the hydrometeorological technician or electronics staff to complete. There may be a need to write a Commissioning note clarifying an action taken by the site to complete the checklist. Enter all notes in the Remarks section of the checklist.

Steps in completing the forms are:

Step 1. Verify the Office Name and Office SID on the Commissioning Checklist form.

Step 2. Review the evaluation elements in Appendix III-B to this addendum. Before beginning the evaluation, determine if all of the criteria are clear enough to begin and which ones apply to your location. If the criteria are not clear, ask office staff to assist with understanding the criteria. Call the Regional Focal Point, if questions remain.

Step 3. When the EO is comfortable with understanding the process and the criteria, begin performing the evaluations:

a. Gather the required information from the operations and electronics staff as necessary. These do not have to be done in any order, rather, complete the ones easiest to accomplish first.

b. When the criterion for an evaluation element is met, use the checklist to mark the corresponding "S" (Satisfactory) column with a check mark or “X”. If a checklist is not-applicable to the site, then enter a check under the N/A column. **Note, all checklist items must have a check in either the “Sat.” or “N/A” columns**. Commissioning notes will be designated by an “x” in the Note column, followed by the actual note in the Remarks section.

c. If deficiencies are found which would prevent assignment of a satisfactory rating to an evaluation element, notify the office management as appropriate:

- Initiate necessary corrective action(s), and/or
- Develop a solution (additional maintenance, training, clarification, or a commissioning note, see Section 2.3). Enter the note at the bottom of the checklist under Remarks.

d. Implement commissioning notes and, when satisfactory achievement of the evaluation element is demonstrated, mark the corresponding "Sat."

(Satisfactory) column with a check mark and document the note under the "Remarks" section of the checklist.

Step 4. Complete the form entitled, Site Component Commissioning Recommendation/Approval:

a. Enter the Office SID/WMO Number in Block 1. For Example, enter KCAR, 72712

b. Enter the Office Location information in Block 2. e.g., Caribou WFO, ME, ER.

c. For Block 3, enter the System as either: ART-1, ART-2, W9000

d. Enter the type of radiosonde in Block 4 as follows: B2, RS80, LORAN, or LORAN/GPS

e. The projected deactivation date is the same as what was placed into the PNS/TIN messages. If more than one PNS/TIN was issued due to changes in the projected date, re-enter the new date and either 00 or 12 UTC.

f. Enter the day you began and ended the evaluation in Block 6. Note, the evaluation should take approximately 1-week.

g. Enter your name, title, phone number in Block 7

h. **Sign** and **date** the form when you have completed your part of the activity.

i. Forward the report to the MIC for his/her signature.

- **RRS Commissioning Readiness Report (CRR)**

The CRR consists of the **original copies** of following in the correct order:

- Commissioning Readiness Report Cover Page.
- Commissioning Recommendation/Approval Form
- Commissioning Checklist
- Documentation of Not-Applicable elements and Commissioning notes

Processing the Completed Report

After the EO has completed the report, it will be sent to the Regional RRS Focal Point, as appropriate, **via express mail**. A copy of the report is to be retained by the EO along with the checklist worksheet and these instructions.

When received at the Regional Office, the Regional RRS Focal Point reviews the material for completeness and verifies the information is correct. Questions, issues, etc. pertaining to the report must be worked out between the office and the regional office. After this has been accomplished, the Regional Focal Point will **fax** a copy of the complete report for NWSH evaluation prior to the Regional/Center Director signing the report. The SCM will coordinate with the Regional Focal Point and NWSH staff any issues or special situations, as necessary. The SCM will inform the region when the faxed report can be approved by the region.

The final step in the process at the regional level is to have the Regional Director sign the report. Then the **original** report with signatures and dates in **ink** will be forwarded to the NWS Commissioning Manager **via express mail**, who will post the necessary information to the web and place the completed report in the Technical Reference Library.

DRAFT

Site Component Commissioning Report

July 2005

Office Name:

Office ID (SID): **Office Type:**

NWS Region/Center:

Approving Official:

Date Commissioned:

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
Office of Systems Operations

SITE COMPONENT COMMISSIONING RECOMMENDATION/APPROVAL FORM	
1. Office SID:	2. Office Location (Name, State, Region):
3. SYSTEM:	4. RADIOSONDE:
5. Official RRS Activation Date: _____ Obs Time (UTC):	
6. Start of Evaluation (Date): Completion of Evaluation (Date):	
7. Evaluation Official (Name, Title, Phone Number): _____ _____ _____ 8. Evaluation Official Signature: _____ Date: _____	

OFFICE RECOMMENDATION FOR COMMISSIONING

I, the undersigned, recommend this Radiosonde replacement System be commissioned for official use by the National Weather Service.

9. Office Manager Title:_____

10. Manager's Name: _____

11. Signature: _____ Date: _____

REGIONAL RECOMMENDATION FOR COMMISSIONING

As Regional Director, I recommend the Radiosonde Replacement System at this upper air station be commissioned for official use by the National Weather Service.

12. Region:_____

13. Name: _____

14. Signature: _____ Date: _____

COMMISSIONING CHECKLIST

COMMISSIONING CHECKLIST				
Location Name/State:		ID:		
1.	**Successful Completion of Site Component Acceptance**	**SAT.**	**N/A**	**NOTE**
1a	Decommission/Dismantle Legacy System			
1b	Signed Acceptance Report DD250/Acceptance			
1c	Major Component Verification			
1d	Property Accounting			
1e	Initial Consumables			
1f	First Official RRS Flight			
2.	**Adequate Availability of Trained Operations and Maintenance Personnel**			
2a	Operator Training			
2b	Maintenance Training			
2c	Certification Verification			
2d	Operational Proficiency			
2e	System Administrator			
3.	**Satisfactory Performance of System Functions and Interfaces**			
3a	AWIPS-RRS Interface			
3b	FAA-RRS Interface			
3c	Internet Connectivity			
3d	Automated Surface Observing System/Other Surface Systems			
3e	RSOIS Interface to RRS			
3f	PDB Interface to RRS			
3g	Printer Function			
3h	System Administration Functions			
3i	Flight Management			
3j	Localization of Site-Specific Data			
4.	**Satisfactory Support of Associated NWS Forecast and Warning Services**			
4a	Public Notification Notice (PNS)			
4b	RRS Activation, Baselining, Launch Procedures			
4c	In-flight Functions			
4d	Observer Interaction In Flight			
4e	Coded Message Generation			
4f	RRS/Host Computer Transmissions			

4g	Flight Termination Procedures			
4h	Data Storage			
4i	AWIPS Applications Verification			
4j	Power Fail Recovery			
4k	Reworking a Flight			
4l	Archiving Flights			
4m	Transmitting Archived Flights			
4n	Overall Performance			
5.	**Proper Functioning of System Back-ups**			
5a	Primary Dial Back-up to Local LDAD/LAN Connection			
5b	First Off-Site Back-up to Local LDAD			
5c	Second Off-Site Backup to Local LDAD			
5d	Backup for Non-AWIPS Sites			
6.	**Satisfactory Performance of System Functions and Interfaces**			
6a	Operations Documentation			
6b	Technical Documentation			
6c	Station Duty Manual Updated			

*Document significant Not-Applicable ratings and all commissioning notes under Remarks

Remarks: